AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

1.   (Withdrawn)

2.   (Currently Amended) An image decoding method of decoding encoded data encoded by an image encoding method of dividing image signals into blocks, performing an orthogonal transform of each block, reading resultant orthogonal transform coefficients to obtain a coefficient string, and performing entropy coding thereof, the image decoding method comprising:

a block selecting step of selecting a size of a block for the orthogonal transform, out of a plurality of blocks of different sizes;

a decoding step ~~for~~ of performing decoding of the encoded data by entropy coding adapted to a coefficient string in a block of a minimum size out of the plurality of blocks; ~~and~~

a coefficient string constructing step of, when a block of a size larger than the minimum size is selected in the block selecting step, constructing a coefficient string of the block of the larger size from a plurality of coefficient strings decoded in the decoding step~~-~~; and

an inverse orthogonal transforming step of decoding an image signal by performing an inverse orthogonal transform on the coefficient string constructed in the coefficient string constructing step.

3.-5.   (Withdrawn)

6.   (Currently Amended) An image decoding apparatus of decoding encoded data encoded by an image encoding method of dividing image signals into blocks, performing an orthogonal transform of each block, reading resultant orthogonal transform coefficients to obtain a coefficient string, and performing entropy coding thereof, the image decoding apparatus comprising:

block selecting means for selecting a size of a block for the orthogonal transform, out of a plurality of blocks of different sizes;

decoding means for performing decoding of the encoded data by entropy coding adapted to a coefficient string in a block of a minimum size out of the plurality of blocks; ~~and~~

coefficient string constructing means for, when a block of a size larger than the minimum size is selected by the block selecting means, constructing a coefficient string of the block of the larger size from a plurality of coefficient strings decoded by the decoding means[[.]]; and

<u>inverse orthogonal transforming means of decoding an image signal by performing an inverse orthogonal transform on the coefficient string constructed by the coefficient string constructed by the coefficient string constructing means.</u>

7.	(Original) The image decoding apparatus according to Claim 6, wherein the coefficient string constructing means is configured to read coefficients in the plurality of coefficient strings decoded by the decoding means, from the lowest in a low frequency region and write the coefficients read out of the respective coefficient strings, one by one in order into a new coefficient string from the low frequency region, thereby obtaining the constructed coefficient string.

8.	(Original) The image decoding apparatus according to Claim 6, wherein the coefficient string constructing means is configured to read coefficients in the plurality of coefficient strings decoded by the decoding means, from the lowest in a low frequency region and write the read coefficients in units of the original coefficient strings into a new coefficient string from the low frequency region, thereby obtaining the constructed coefficient string.

9.	(Withdrawn)

10.	(Currently Amended) <u>A computer readable medium comprising computer-executable instructions for performing an image decoding method of</u> ~~An image decoding program for~~ decoding encoded data encoded by an image encoding method of dividing image signals into blocks, performing an orthogonal transform of each block, reading

resultant orthogonal transform coefficients to obtain a coefficient string, and performing entropy coding thereof, comprising ~~the image decoding program letting a computer execute~~:

a block selecting step of selecting a size of a block for the orthogonal transform, out of a plurality of blocks of different sizes;

a decoding step of ~~for~~ performing decoding of the encoded data by entropy coding adapted to a coefficient string in a block of a minimum size out of the plurality of blocks; ~~and~~

a coefficient string constructing step of, when a block of a size larger than the minimum size is selected in the block selecting step, constructing a coefficient string of the block of the larger size from a plurality of coefficient strings decoded in the decoding step~~.~~; and

an inverse orthogonal transforming step of decoding an image signal by performing an inverse orthogonal transform on the coefficient string constructed in the coefficient string constructing step.

11. (New)   An image decoding method of decoding encoded data encoded by an image encoding method of dividing image signals into blocks of different sizes, performing an orthogonal transform of each block, reading resultant orthogonal transform coefficients to obtain a coefficient string, dividing a coefficient string of a block of a size larger than a minimum size into a plurality of coefficient strings of a length equal to that of a coefficient string in a block of the minimum size, and performing entropy coding thereof, the image decoding method comprising:

a decoding step of performing decoding of the encoded data and obtaining the coefficient string;

a coefficient string constructing step of, when the coefficient string decoded in the decoding step is of a block of a size larger than the minimum size, constructing a coefficient string of the block of the larger size from a plurality of coefficient strings decoded in the decoding step; and

an inverse orthogonal transforming step of decoding an image signal by performing an inverse orthogonal transform on the coefficient string constructed in the coefficient string constructing step,

wherein the encoded data is encoded data of either a coefficient string consisting of 16 coefficients obtained by performing an orthogonal transform on the block of a 4x4 pixel size, and reading the orthogonal transform coefficients sequentially from a low frequency component, or a coefficient string consisting of 16 coefficients obtained by performing an orthogonal transform on the block of an 8x8 pixel size, reading the orthogonal transform coefficients sequentially from a low frequency component, and assigning the resultant 64 coefficients, from a low frequency component one by one in order, to four coefficient strings;

the decoding step performs decoding of the encoded data of the coefficient string consisting of 16 coefficients;

the coefficient string constructing step, when the coefficient string decoded in the decoding step is of the 8x8 pixel size block, constructs the coefficient string consisting of 64 coefficients by reading and arranging the coefficients of the four coefficient strings of the 8x8 pixel size block, decoded in the decoding step, from a low frequency component one by one in order; and

the inverse orthogonal transforming step decodes the image signal by performing an inverse orthogonal transform on the coefficient string of the 4x4 pixel size block decoded in the decoding step, and on the coefficient string of the 8x8 pixel size block constructed in the coefficient string constructing step.

12. (New)   An image decoding apparatus of decoding encoded data encoded by an image encoding method of dividing image signals into blocks of different sizes, performing an orthogonal transform of each block, reading resultant orthogonal transform coefficients to obtain a coefficient string, dividing a coefficient string of a block of a size larger than a minimum size into a plurality of coefficient strings of a length equal to that of a coefficient string in a block of the minimum size, and performing entropy coding thereof, the image decoding apparatus comprising:

decoding means for performing decoding of the encoded data and obtaining the coefficient string;

coefficient string constructing means for, when the coefficient string decoded by the decoding means is of a block of a size larger than the minimum size, constructing a coefficient string of the block of the larger size from a plurality of coefficient strings decoded by the decoding means; and

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inverse orthogonal transforming means of decoding an image signal by performing an inverse orthogonal transform on the coefficient string constructed by the coefficient string constructing means,

wherein the encoded data is encoded data of either a coefficient string consisting of 16 coefficients obtained by performing an orthogonal transform on the block of a 4x4 pixel size, and reading the orthogonal transform coefficients sequentially from a low frequency component, or a coefficient string consisting of 16 coefficients obtained by performing an orthogonal transform on the block of an 8x8 pixel size, reading the orthogonal transform coefficients sequentially from a low frequency component, and assigning the resultant 64 coefficients, from a low frequency component one by one in order, to four coefficient strings;

the decoding means performs decoding of the encoded data of the coefficient string consisting of 16 coefficients;

the coefficient string constructing means, when the coefficient string decoded by the decoding means is of the 8x8 pixel size block, constructs the coefficient string consisting of 64 coefficients by reading and arranging the coefficients of the four coefficient strings of the 8x8 pixel size block, decoded by the decoding means, from a low frequency component one by one in order; and

the inverse orthogonal transforming means decodes the image signal by performing an inverse orthogonal transform on the coefficient string of the 4x4 pixel size block decoded by the decoding means, and on the coefficient string of the 8x8 pixel size block constructed by the coefficient   string constructing means.

13. (New)   A computer readable medium comprising computer-executable instructions for performing animage decoding method of decoding encoded data encoded by an image encoding method of dividing image signals into blocks of different sizes, performing an orthogonal transform of each block, reading resultant orthogonal transform coefficients to obtain a coefficient string, dividing a coefficient string of a block of a size larger than a minimum size into a plurality of coefficient strings of a length equal to that of a coefficient string in a block of the minimum size, and performing entropy coding thereof, comprising:

a decoding step of performing decoding of the encoded data and obtaining the coefficient string;

a coefficient string constructing step of, when the coefficient string decoded in the decoding step is of a block of a size larger than the minimum size, constructing a coefficient string of the block of the larger size from a plurality of coefficient strings decoded in the decoding step; and

an inverse orthogonal transforming step of decoding an image signal by performing an inverse orthogonal transform on the coefficient string constructed in the coefficient string constructing step,

wherein the encoded data is encoded data of either a coefficient string consisting of 16 coefficients obtained by performing an orthogonal transform on the block of a 4x4 pixel size, and reading the orthogonal transform coefficients sequentially from a low frequency component, or a coefficient string consisting of 16 coefficients obtained by performing an orthogonal transform on the block of an 8x8 pixel size, reading the orthogonal transform coefficients sequentially from a low frequency component, and assigning the resultant 64 coefficients, from a low frequency component one by   one in order, to four coefficient strings;

the decoding step performs decoding of the encoded data of the coefficient string consisting of 16 coefficients;

the coefficient string constructing step, when the coefficient string decoded in the decoding step is of the 8x8 pixel size block, constructs the coefficient string consisting of 64 coefficients by reading and arranging the coefficients of the four coefficient strings of the 8x8 pixel size block, decoded in the decoding step, from a low frequency component one by one in order; and

the inverse orthogonal transforming step decodes the image signal by performing an inverse orthogonal transform on the coefficient string of the 4x4 pixel size block decoded in the decoding step, and on the coefficient string of the 8x8 pixel size block constructed in the coefficient string constructing step.

14. (new)   A decoder for decoding encoded video data which comprises blocks of transform coefficients, comprising:

an instruction analyzer configured to analyze an instruction from an encoder regarding reconstruction of the video data;

an entropy decoder configured to decode the blocks of transform coefficients into decoded blocks of transform coefficients; and

a coefficient list maker configured to combine, according to an analysis result from the instruction analyzer, the transform coefficients of the decoded blocks into a first list of transform coefficients in which the transform coefficients of a respective decoded block are interleaved with the transform coefficients of another decoded block.

15. (new)   A decoder according to claim 14, wherein the decoded block comprises 4 x 4 transform coefficients.

16. (new)   A decoder according to claim 14, wherein the first list comprises 8 x 8 transform coefficients.

17. (new)   A decoder according to claim 14, further comprising a transformer configured to perform an inverse discrete cosine transform on the transform coefficients in the first list.

18. (new)   A decoder according to claim 14, wherein according to the analysis result from the instruction analyzer, the coefficient list maker constructs a second list of transform coefficients from a single decoded block of transform coefficients.

19. (new)   A decoder according to claim 14, further comprising a second list maker configured to make a third list of transform coefficients from at least one first list of transform coefficients.

20. (new)   A decoder according to claim 19, wherein the second list comprises 16 x 16 transform coefficients.

21. (new)   A method for decoding encoded video data which comprises blocks of transform coefficients, comprising:

    analyzing an instruction from an encoder regarding reconstruction of the video data;

    entropy-decoding the blocks of transform coefficients into decoded blocks of transform coefficients; and

according to an analysis result on the instruction, combining the transform coefficients of the decoded blocks into a first list of transform coefficients in which the transform coefficients of a respective decoded block are interleaved with the transform coefficients of another decoded block.

22. (new)   A method according to claim 21, wherein the decoded block comprises 4 x 4 transform coefficients.

23. (new)   A method according to claim 21, wherein the first list comprises 8 x 8 transform coefficients.

24. (new)   A method according to claim 21, further comprising performing an inverse discrete cosine transform on the transform coefficients in the first list.

25. (new)   A method according to claim 21, further comprising constructing, according to the analysis result from the instruction analyzer, a second list of transform coefficients from a single decoded block of transform coefficients.

26. (new)   A method according to claim 21, further comprising making a third list of transform coefficients from at least one first list of transform coefficients.

27. (new)   A method according to claim 26, wherein the second list comprises 16 x 16 transform coefficients.